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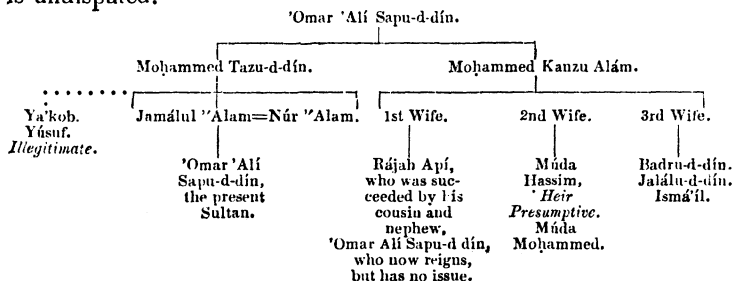
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Kanzu 'Alām. This happened about 1795. Kanzu 'Alām had three wives, and had numerous children. About 1816 he was succeeded by his eldest son, called, from the brilliancy of his eye, Rājah A'pī (Fire). Rājah A'pī was succeeded, in 1820, by his cousin and nephew, 'Omar 'Alī Sapu-d-dīn, who now reigns: he has no issue.

The Rājah Múda Hassim is the heir presumptive; and the power of his illegitimate cousin, Yúsuf, being destroyed, his claim is undisputed.



#### XVIII.—*Journal of an Excursion from Singapur to Malacca and Pinang.* By J. R. LAGAN, Esq.

THE following notes were written in the course of a visit to Malacca and Pinang in March, 1845. After a residence of some years in the island of Pinang, the writer removed to the younger and more thriving settlement of Singapur; and having obtained a short period of leisure, after two years of unremitted labour there, he employed that interval in a visit to Malacca for professional purposes, extending his voyage to Pinang. These notes were principally written on the spur of the moment for the amusement of distant friends; and I have only made some slight additions to render them more intelligible to those who are not so familiar with the Straits as my "constant correspondents" in Scotland by this time probably are, in the belief that, though but skimmings from the surface, they may perhaps be found not to be wholly uninteresting to those who are desirous of becoming more familiarly acquainted with our settlements in the Eastern Archipelago.

*Malacca, March 8th, 1845.*—Yesterday I was in the midst of all the bustle of the Commercial Square at Singapur, and am now in perfect solitude on a little open bangalá on the sea-side, three miles from the quiet old town of Malacca. I left Singapur about 5 o'clock yesterday afternoon in the new steamer *Fire*

*Queen*, which has just begun to ply between Calcutta and the settlements on the Straits. Among my fellow-passengers there were two gentlemen from S. America; one of them, extensively concerned in the guano trade, had brought a quantity of guano from the islands near the S. American coast to China, thinking that it might be sold there advantageously; but the speculation seems not to have met with the expected success. The Chinese husbandmen, who never let anything be wasted which can serve as manure, had no great need of guano; and in the Straits of Singapur, or close upon their northern entrance, there are islands of our own which yield large supplies of a substance very serviceable, if less rich than the American guano. The other passenger to whom I alluded above was a captain from China, engaged in the opium traffic, who had much to tell of Hong Kong. There were also two other passengers, Dutch gentlemen from Batavia, who were indefatigable in examining charts, reading Newbold, and consulting the Pinang Almanac and Directory. One of the latter is a well-informed and zealous officer in the Dutch navy, the Baron Melville de Carabee, who has been engaged for the last ten years in scientific surveys of the Dutch islands, and is now on his way to Europe in order to publish large maps of all the eastern possessions of the Netherlands (Neerlands Indie), with a description of their volcanoes and mountains, the heights of which have been ascertained barometrically or trigonometrically. From him I learned that all the west coast of Sumatra, from Padang northwards, has been accurately surveyed; and that one of their medical men, who lately passed a whole year in the country of the Battas, is about to publish an account of what he saw, which from his talents is likely to be very valuable. We reached Malacca at 2½ P.M., having been above twenty-two hours steaming. On landing, I proceeded to the house of H——, a retired Chinese merchant, reputed to be the wealthiest man in the Straits, whose desire to consult me had occasioned my visit to Malacca. The Chinese houses here, at least the two or three I have been in, which are about the best in the place, struck me with admiration. They are unlike anything I have ever seen in the Straits, and bear a close resemblance to the representations of dwelling-houses in China which may be seen in books on that country. Koon Swee's house consists of two halls, from the ceilings of which are suspended many very beautiful and tasteful lamps of a peculiar kind. The walls are hung with pictures: some English, some Chinese, and a few French, the last not of the most chaste description. The second hall opens into a large court, of which the middle is depressed about a foot and a half below the level of the sides. Curious trees in pots are ranged in the centre. The private rooms open into an upper balcony, which overlooks the court.

At the further end of this court is the *Shêw-chú*,\* or ancestral—say, rather, paternal—altar, for they are only their more immediate predecessors whom they hold in remembrance. A wide pair of folding-doors thrown open disclose a long inner court stretching down towards a clump of trees. All the doors being open, the current of air flowing over the tiled floors keeps the rooms deliciously cool. At 5 o'clock a splendid dinner was served up in a little snug room adjoining the outer hall of H——'s house, of which repast he, out of complaisance, partook, but in which Koon Swee was prevented, by a vow, from joining, having, on occasion of the sickness of some relative many years ago, sworn that if she recovered he would not eat on certain days, save of some simple fare, which the pigeon soup, laksa soup, stewed ducks, curries, &c., before us did not include. So, at least, he excused his abstinence; but the jolly countenance of my aldermanic friend bore so little of a fasting look, that I was inclined to think his chopsticks had already served their turn for that day. After dinner, H—— loaded one palankeen with my luggage, and brought me out here in another. He busied himself for about two hours in making everything comfortable; a couch, lamps, a goodly basket of champagne, sherry, beer, and eatables followed from Malacca. The place I occupy is a sort of bungalow, or rather *bálai*† open all round, about thirty feet square, having two small rooms in the landward corners. The sea dashes against the beach within twenty feet, and is fast sapping the roots of a row of very old senna-trees. It has already worked up to their trunks, and they cannot hold out much longer. The scene at night, when I was left alone, was peaceful and beautiful beyond anything I had seen for a long time. The air was still; the stars gleamed amongst the high leaves and branches of the senna-trees. The cocoa-nuts threw their dark shadows on the land behind, and the sea in front glimmered in the starlight. The next morning I was on foot by half-past five o'clock, and took a long walk along the road in the direction of Tenjong Kling. When clear of the cocoa-nut plantation in which the bungalow stands, I found myself amongst paddy-fields, stretching away, on the land side, into a plain of large size bounded by low jungle, and on the other side not broader than a field in England. Presently, the road turned towards the coast, and, as far as I proceeded, followed it, having only a row of senna-trees‡ separating it from the sandy beach. On the land side were clumps of cocoa-nut trees, sometimes running into each other, so as to form a

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\* *Shêw-chú*, i. e. the seat of the departed spirit.—F. S.

† *Bálai*, an open hall of audience like the African *Bentang*.—F. S.

‡ A species of cassia (?).

continuous screen; at other places broken, and showing the paddy-plains stretching inland. At short distances were doors opening through fences into Malay and Chinese huts. The latter proved to be shops; as daylight increased these were opened, and a few Malays took the road, carrying bundles of salt fish. The quietness of the road, the few houses, each separate, like a villa, from its neighbour, and the absence of crowds of children and fishing boats, sufficiently distinguished this scene from the coast of Wellesley Province, north of the Prye, which in other respects it somewhat resembles. I was delighted again to see plains of paddy in the ear. The greater part was already reaped. I struck off the main road, and proceeded about half a mile across the *bindang*.<sup>\*</sup> Everything had a quiet indolent look: the very buffaloes were not to be disturbed by the intrusion of a stranger, and cropped the paddy-stalks and licked their calves without paying the slightest attention to my presence. The Wellesley Province buffaloes would have given a different and less agreeable reception to an *orang pútib*† who ventured to approach them. I walked till I perceived there was little more to be seen unless I prolonged my excursion beyond my walking powers. The *tout ensemble* is considerably inferior to the Mooda and Penaga districts of Wellesley Province. The paddy is stunted in comparison; instead of long lines of *permatangs*,‡ covered with trees and full of inhabitants, there are only here and there a few scattered cocoa-nut trees, on the same level as the bindings, with a solitary hut beside them. On all sides, too, the view is closed by jungle growing in the *sawah*§ level, and everything indicates a state of extreme indolence, and an absence of all enterprise or persevering industry.

On my return, I found a cart had just arrived with a barrel of fine spring water from Bukit Chiná,|| on the other side of Malacca, for my ablutions. "Well!" thought I, "it is really worth while for once to be the guest of a wealthy Chinese." I had scarcely completed my toilet when my host made his appearance. I should have mentioned, however, that after I came in from my walk, my Singapur friend K. paid me a visit. I strongly impressed on him the propriety of taking a young Malacca damsel to wife, when he had so good an opportunity; a piece of advice in which his uncle H—— afterwards heartily concurred. The immense disproportion of the sexes in Singapur is one of its most remarkable, and, in its consequences, worst, characteristics. It is

\* The little compartments into which the paddy plains are divided by embankments for the purpose of irrigation.

† White man: such is the generic term for Europeans and other fair races.

‡ Sandy ridges afterwards more particularly noticed.

§ Wet paddy-land.

|| China Hill.

principally owing to the preponderance of Chinese among the inhabitants, the scantiness of the Malayan population in the adjacent territories, and the habit to which so many of the Malacca-born Chinese, the first Asiatic merchants of Singapur, still adhere, of keeping their families at Malacca. So long as the Chinese husbands find it impossible to intermarry with the women of these countries, the permanent agricultural improvement of Singapur will remain impossible.

After dinner I strolled along the beach towards Malacca. I omitted to notice that I found the soil of the paddy-land to be a light-coloured clay, with ferruginous streaks, supporting a blackish mould of a few inches in thickness, which forms the bed of the paddy. This upper soil consists of the clay, thoroughly mingled and imbued with decayed vegetable matter, and enriched in some considerable degree, no doubt, by the droppings of the buffaloes. To what extent this mould may be the effect of cultivation I have not had an opportunity of judging. In my after-dinner stroll I found that the same soils were continued to the sea. The sea, in fact, is gradually eating into the soft clayey plain; the rocky line farther north, running out to Tanjong Kling, causes the encroachments of the sea to assume a crescent-shaped form. A narrow line of reddish sea-sand is thrown up against the freshly broken land, where the clay is exposed to the depth of about three feet. The black mould is, in some places, a foot and a half in depth. I also found some traces of black clay, a good deal resembling that of Singapur; but both the clays here are much less stiff, and do not seem to harden so much. I came to a sugarcane field cultivated by Chinese; this cane has a strong, healthy, vigorous appearance, and, with its black mould in which it grew, told strongly against the Singapur plantations. I returned by the road, and, now that I could look more leisurely on the face of the country, its beauty pleased me very much. There are no hedge-rows, but, instead of them, rows of a curious tree which grows pretty tall, covered with a white bark which seems to be constantly in a state of exfoliation, and hangs round it like an old tattered garment: it has no large lateral branches, and the leaves are small and narrow. The cocoa nuts here are very good: all that I have examined appear to grow out of the same soil as the paddy. I went into a small plantation which I was told belonged to Koon Swee. Some of the trees had at least 100 nuts on them. His people were busy carting sand from the sea-beach, and spreading it over the ground. I should mention that the soil of the paddy-fields on the Malacca side of Klaebang appeared to me to have a thicker bed of black mould than the tract which I examined on the other side. In comparing the Malacca plains with those of Wellesley Province, it is to be kept in

mind that the one coast is exposed to the swell of the Bay of Bengal, while the other is in the middle of a narrow sea 400 miles in length, and at Malacca not more, I suppose, than 50 in breadth. There is a little island at some distance in front covered with wood, the red (granitic) rock of which is visible at low water.

*March 10th.*—I have been sitting for half an hour on the roots of a senna-tree, now prostrate from the soil on which it grew having been washed away by the sea. This is the furthest tree of the row on the north side. It is merely united to the land by the extremities of the landward roots. The clay has been hollowed out below, but the grassy surface is still left. This too has disappeared in some places, and through the roots we look down on the bed of mud which they have helped to retain, and which is washed smooth by the sea. Although the lower part of the trunk is daily covered by the tide, and the greater part of the roots are also exposed to the salt water, the branches continue to put forth fresh leaves and flower-buds. The next tree is also undermined a little inside of the trunk, and is bent down over the sea. The other three in front of the bungalow still stand erect, but the sea is within a foot of their trunks. It was not, however, in examining this invasion of the sea that I was occupied, but in gazing on the line of coast stretching northward to Tanjong Kling, which is exquisitely beautiful. The sea is now smooth, with a gentle ripple. Flocks of white sea-birds skim along its surface or cover the fishing-stakes. A few boats are afloat. The margin of sand is surmounted by one unbroken but irregular wall of trees, among which the senna and cocoa-nut are easily distinguished. The long horn projecting out to Tanjong is opposite me; the morning sun is behind it, and that sweep of trees is bathed in light, and their outlines, as it were, distinctly defined by the white gleaming radiance in which they rest. The nearer portion of the coast is finely marked. The green rounded masses of the senna-trees, the smooth floor of sea-sand partly covered with their shadows, and the white gleam of the mirror-like sea, produce an exquisite effect. One group of senna-trees is particularly striking. A small stream flows into the sea close to me. On its northern side is a small paddy-field, with cocoa-nut trees and huts surrounding it on the land side. I picked up some masses of red granite on the beach, and the sand is evidently formed from this rock. I find on examining the ironstone that it is very different from the Singapur ferruginous clay; at least, the specimens here are so, and they are similar to those I observed as we entered, strewn about, marking the walls of the old fort. This rock has somewhat the appearance of a lump of clay from an ant's-hill, being full of chambers. It is quite hard: traces of the yellow-ochry matter,

with which these chambers have been filled, are visible. Although at some places in Singapúr a similar appearance is assumed by that called laterite, it generally consists of sharp angular fragments, and, instead of being hard, it is of a crumbling nature. Between eight and nine o'clock I went into town: this was the first time I had seen the road by daylight. The first part, near Klaebang, I have already described. For some distance it preserves the same features—paddy-fields, clumps of trees, sea-views, inland rivers (?), &c.—road narrow, no hedges—a Chinese garden, with vegetables, sugar-cane, &c., occasionally. Presently, the cocoa-nut trees and houses, particularly on the side towards the sea, become more numerous, and at last continuous on both sides. There is much diversity in the construction of the houses (which are for the most part very neat), and in the appearance of the inmates. Hindoos at first predominate. Then we observe a considerable admixture of Portuguese (*i. e.* Malacca Portuguese), until the road imperceptibly passes into a street, with here a neat Chinese house, by and by a succession of old-fashioned but clean and neat-looking Dutch houses—trees more or less abounding—ending in a continuous row of houses, without any gardens, chiefly belonging to Chinese. Some of their houses are very neat and well fitted up. For a considerable part of the way the soil seemed to be the same as that at Klaebang, many of the plantations having merely a top-dressing of sand; but near the suburbs the soil itself becomes sandy. The trees (cocoa-nuts, with few exceptions) had a very fair number of nuts; but in many places, I should say in most, they were not improved by cultivation. I visited the court-house, which is one half of a room in the stadthouse, and heard the new president, Mr. Lushington, give judgment, or *award*, as he called it, in a case. A crowd of Malacca *Jáví Pakans*, a race of rogues, filled the room. The walls of the stadthouse are very thick. Each window has two little seats in the corners, of solid brickwork, with a wooden top. All the woodwork is of teak, brought from Java. The church is a very plain, old-fashioned edifice, close to the stadthouse. The latter, from its size and solidity, has a particularly respectable appearance, from which its very plain old European style does not detract. There is no semblance of viranda about it; nothing but substantial square windows. About the middle of the day I went out to Pringate, and saw Mr. Salmond. The first part of the road is through low ground covered with a mass of cocoa-nut and fruit trees. The huts are not nearly so numerous as on the way from Klaebang. A very small part of the road is through this ground. It soon crosses the base of a small low hill, the soil of which is nothing but red gravel or pebbles, precisely like those so abundant in Singapúr—on the top and sides of Mount Victoria, for



instance. The rest of the road leads over the sides of similar hills: Pringate itself is the same. All these hills are covered with fruit-trees of various sorts; some are very large forest-trees, yielding fruits. At some places a few cocoa-nuts were to be seen in the red soil, looking pretty well. Although the bottoms of the hills on the left are covered with a thicker growth of trees than the upper part, open spaces occasionally appear, through which the paddy plains are visible. The view from Pringate is very fine; you look down on an extensive and varied landscape—sheets of yellow paddy-fields, with huts, low jungle here and there, hills with masses of forest, and blue mountains at a distance. Notwithstanding the red gravel, of which the hill consists, is of the most barren description, the fruit-trees which are scattered over its slopes have a fine light-green colour, and, though not equal in effect to large forest-trees, give it a park-like appearance, to which some fine cows grazing not a little contribute. Beneath some of the fruit-trees coffee is grown, but the bushes are lanky. I dined with Koon Swee, and again admired the coolness and neatness of the rooms. He put an excellent dinner on the table, partly consisting of European and partly of Chinese dishes. After dinner we drove out, following the road to Pringate for some time, and then turned off to the right and went round Búkit Chíná, another of these red hills, which the Chinese use as their burying-ground. This hill is on the right. On the left are fruit-trees in dense thickets. Beyond them a glimpse is obtained, once or twice, of extensive paddy-fields. To the S.W. of this hill rises another, called St. John's, belonging to H—, covered with fruit-trees, and surmounted by a little Dutch fort. We walked up this hill by a very gradual ascent, which becomes rather abrupt near the top. From the fort you look down on the narrow red line of road at your feet, through the branches of old fruit-trees, which cling to its almost precipitous side. The view all round is very splendid, particularly southwards. In front and to the S.W. lies a large tract of cocoa-nut trees. The dense unbroken mass of leaves of a deep-green colour gives an appearance of high health and vigour to these plantations; and in reality, I understand, they are very prolific, growing out of a soil of mingled sand and black vegetable earth. A small tract of mangrove thicket lies between them and the sea. Behind the cocoa-nuts lie extensive paddy-fields. Huts are scattered over them, but they are without any trees or other vegetation than the paddy itself. A line of scattered fruit and cocoa-nut trees stretching across the paddy-fields in a southerly direction marks a road, I believe. The plains, as usual, are terminated by brushwood. Mount Ophir rises grandly behind. To the E. the eye encounters an elevated broken country, dark with fruit-trees; and to the N. a plain of no great

extent, partly covered with cocoa-nut and fruit trees and partly by paddy, lies between this hill and St. Paul's, on the summit of which rest the grey walls of the ruined Portuguese church built by Albuquerque. After what I have said of the different roads our drives passed over, it is not necessary to add anything more regarding my general impressions of the scenery of Malacca: as a whole, it is, of all the settlements on the Straits, decidedly the best adapted for agriculture. The large tracts of flat country with a whitish clay or loam, less tenacious than any of the sort I have elsewhere seen near the Straits, and with a surface-soil of dark mould, are capable of being formed into any kind of plantations. Judging from the tracts still in a state of jungle that everywhere meet the eye, even when walking along the roads near the beach, there must be a great deal of land available for the planter.\* The most striking characteristic of the inhabitants is that they have apparently nothing to do. I really saw nobody at work all the time I was in Malacca, if I except Mr. Lushington. There were not many persons in the streets, and those few were lounging about their own doors. I ought to have noticed in its proper place that on Sunday morning a boat crowded with Malays passed in front of Klaebang, slowly pulling towards the town, with musical instruments, a fine-toned gong, and the voices of the joyous Malays uniting in a pleasing air. In the evening I met a long train of Portuguese, men, women, and children, gaily dressed, wending their way back to town from some excursion. I have omitted to mention, as a feature in all the sea-views, the water-islands to the S.W. of the town. They are rocky, but covered with trees. There are some famous Malay krammats, or tombs of ancient worthies, on them; and at one particular season every year the whole population for days continue to visit them, and pass the joyous time in eating and making merry. I cannot conceive any place better fitted than Malacca to soothe and tranquillize the mind when it has been fretted and worn by the toil and strife of Singapúr. But, without a companion, the somniferous influence of the place would soon unfit one to return to the bustle of the emporium. Of the inhabitants, further than as they appear on the mere surface, I had no opportunity of judging; but I was struck by a sort of knavish and forward look which characterised the *Jáwí Pakans*, who predominate amongst the idlers in town. The view of Malacca from the sea is pleasing. The coast forms a long curve: the green hill of St. Paul's crowned by the ruined church, a few plain European houses along its base, a line of

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\* An European company has lately been formed in Singapúr for the cultivation of the sugar-cane at Malacca. There are some difficulties connected with the lauded tenures, which differ from those at Pínang and Singapúr. The subject is at present under reference to the Supreme Government,—1st June, 1846.

small dingy houses along the beach to the N. of the river, and the continuous cocoa-nut plantations, backed by the mountains of Rumbówi, &c., all make a very pleasing landscape; which I recollect struck me very much when I first saw it on my way to Singapúr two years ago. I was pressed with business during my three days' sojourn, and had no time to make inquiries regarding anything; all I saw being little but hurried glimpses.

11th.—I left Malacca for Pínang this afternoon, in the Government steamer *Diana*. The coast, as far as Cape Rachado,\* is more or less rocky, and apparently wasting, like that of Malacca.

12th.—This morning, at 6 o'clock, we entered the Straits of Callam—the route which Captain Congalton invariably follows in his frequent voyages between Pínang and Singapúr. The Strait is like a large river, or canal. The islands between which it lies are merely flats, and formed of black mud, covered with mangrove thickets; so that it exactly resembles the mangrove creeks which are so abundant in the peninsula and archipelago. For some time we steamed on, seeing nothing but the wall of the thick mangroves on either side. In some places, where a yard or two of fresh sand had been deposited on the margin, young and slender trees, or seedlings, grew up literally as thickly as a crop of corn. Towards the northern extremity of the thickets, one place of considerable extent was quite naked, and covered with flying foxes, which have settled here for many years. At midday we were opposite the Salangór hill, which seemed scarcely higher than a clump of trees: with a glass, its sides were seen to be covered with cocoa-nut trees, and its summit by a grove of senna-trees. To the S. a low mangrove swamp of great extent stretched along the coast. Behind it the country bore an appearance of cultivation; cocoa-nut trees, as usual, taking the lead. To the N. a portion of the coast is rocky. Cocoa-nut trees, and huts among them, are seen in this direction also. Shortly afterwards we crossed a broad turbid tract of a reddish colour, occasioned by the waters of the Salangór river. From this time (1 A.M.) till dusk we were in sight of a perfectly flat country, covered with brushwood, and extending a long way back towards the mountains.

13th.—At daybreak this morning the Dindings were seen considerably in the rear. On the right, the lofty mountains of Pérák† rise at a distance: the highest of these, Gúnong Búbú, is a fine object in the view from the Pínang hills. Between 7 and 8 o'clock

\* i. e. Cleft.

† Peiráh in Valentyn (*Beschreeving van Oost India*), whose orthography is usually correct.—F. S.

the eye could occasionally catch the outline of the highest summits of the latter, appearing like a fine filament. It was not till nearly midday that the outline of the island became quite distinct, though still faint. At 3 o'clock we had passed Púló Kindí, and were abreast of Púló Rímán, with its cocoa-nuts on the beach and straggling up its side, among brushwood, to its rocky summit. The southern face of Pínang lay before us, bold and dark with wood. The S.W. point is rocky and abrupt. Within it, stretched towards us, the long curvilinear sandy beach of Tulloh Kumbar Bay, and the cocoa-nut covered coast of Biyan Lepa separated by a round hill, yellow with láláng and grass. Right a-head jutted out the S.E. point of the island, rocky and hilly like the other. Before we reached this point, the hills of the island, the channel, and the main land had appeared jumbled together in inextricable confusion; so that, familiar as I had long been with the whole from other points of view, I found it impossible to distinguish one from another; but, as we entered the channel, they seemed, one by one, to change as if by magic—separating from each other, assuming new arrangements, and altering their outline—till all my old acquaintances looked down upon me with an air of friendly welcome. The feelings with which I gazed on the shifting scene as we proceeded up the channel were many and strong, and I thought this hour had been almost cheaply purchased by two years' absence. I was most forcibly impressed, on reaching the centre of the channel, with the contrast between the low and unattractive aspect of Singapúr and the grand massive character of the island itself, stretching along the channel as a bold dark irregular mountain-wall. When at last the town and harbour, with its shipping, came distinctly into view, the scene became indescribably varied, from its union of so much that is grand with so much that is soft. The channel, landlocked on all sides, shone like a broad glittering lake, or inland sea. Nearest to us on the left, lay the Bátú Lanchong range of hills, with the quadrangular mount Restalrig and pyramidal Bátú Báyas resting on the Bátú Lanchong range of hills, which sink undulating into the channel. Over this range were seen the Pentland hills, with the peaked summit of Bellmont, surmounted by its bungalow, forming the background of the pass between Mount Restalrig and Bátú Birtam. Beyond Lansdowne and Sans-Souci, northern members of the last range (once covered with clove-trees and crowned with their bungalows, but now abandoned to nature), the north-western or principal mountain group of the island springs up, and continues in a northerly direction, gradually rising till it attains its greatest eastern elevation in Government (or, *par excellence*, the Great) Hill. The face of the Bátú Lanchong range is grassy; grey rocks are scattered over it in abundance, and clumps or tufts

of brushwood appear here and there in moist hollows. The steep side of the northmost range is one dark mass of forest. Lying against it is the partially cultivated hill called the Highlands; its lowest slope covered with nutmeg-trees, and its higher flanks with cloves. A narrow neck of great steepness connects the great range with Mount Olivia, where Raffles laid the foundation of those acquisitions which earned for himself so much celebrity, and might have gained for his country so much advantage. Beyond Mount Olivia, where the house is still standing, is the now deserted Mount Erskine, the low wooded peak of which, resting on the northern channel, forms the centre of the picture. The beach fronting these hills, stretching from Glufor to the S. end of the town, is decked by a continuous fringe of cocoa-nuts. From the extremity of this, and on an apparent continuation of the same low line, stretch, in a long narrow zone, the houses and fruit-trees of the town, with the fort and shipping, till they meet a group of low hills on the mainland, north of the province, thus completely closing in the channel. Above this group towers, in all the majesty of its proportions, Gúnong Jerrai, or Kédah Peak, magnificent from its height, breadth, and sharp serrated outline, and now clothed in its usual blue, misty robe. The long curved sandy beach of the Wellesley Province, with its row of cocoa-nuts, forms the margin of the channel on the right. Behind it, the scarcely seen summits of Búkit Jalutong, and the other higher hills on the frontier of the province, seem to lie at the feet of the dim blue mountains in the interior of the peninsula.

20th, *Búkit Mérah, in Wellesley Province.*—Yesterday, at  $\frac{1}{2}$  past 3 o'clock A.M., I descended Mount Restalrig. The day began to break as I reached the valley of Pyah Trúbong, and the freshness of the morning air and pleasant recollections rendered the walk to the village of Azer Étam, where I procured a hackney palankeen to convey me to George Town, delightful. In the evening I crossed the channel, pulled up the Paxe river to Bagan Srye, and, guided in the dark by a friendly Malay woodcutter, who was returning to his home at Permatang Pau, but volunteered to prolong his walk, I arrived here at  $\frac{1}{2}$  past 8 o'clock. This morning I retraced my last night's road as far as Permatang Pau, and then struck off southwards. From Búkit Mérah to Permatang Pau it is rather more than a mile across the paddy plain, which extends nearly the whole breadth between the rivers Prye and Júru, or somewhat less than 6 miles. The Malays are still gathering their paddy, about one-third of the crop being yet upon the stalk. Women and old men are employed in this labour. The produce varies a great deal even in bindangs adjoining each other, owing, probably, to a difference in the care and skill of the cultivators; and in a greater degree in tracts which, from dif-

ference of level and other causes, are unequally irrigated. The soil I did not examine closely in many places, but where I did, it was a dark mould resting on and partially mixed with clay. There are large tracts where, owing to depression below the general level, vegetable matter has accumulated and is in excess, and other tracts where it is sufficient (deficient?). I was informed by the Malays that almost everywhere on this plain, in digging wells, they come, at the depth of a man's height, to sea-shells, and that sea-mud is the universal subsoil of the flat tracts. They all appear to be impressed with the belief that the sea formerly occupied the site of their paddy-fields, and that the *permatangs* were sand-banks. There cannot be a doubt that these long bands of sand traversing the clayey or vegetable alluvium of this plain were successively the beaches of the sea; and it is highly probable that some of them at least, before they were annexed to the land or rose above the level of the sea, existed in the channel as banks. As I approached Permatang Pau the soil suddenly changed from clay to sand, but continued to maintain nearly the same level, and to be used as paddy ground. On reaching its margin it rose at once a few feet, and was seen stretching away to the right and left at the same elevation above the plain. It is of considerable breadth, and about 2 miles in length. A public road passes along its centre, and I took that route (the only practicable one at present) southwards. The permatang now forms a most interesting scene, all the population of the plain being congregated on this dry belt. It is in fact one large straggling village, with huts scattered over it at irregular intervals, each in its own kampong (enclosure), filled with cocoa-nut and fruit trees, principally the former. The point where it is crossed by the Bagan Srye and Búkit Mérah road is, I suppose, about its centre. Here are several shops adjoining each other on the roadside, an old Attap village mosque, and a pangúlú's táhah.\* After proceeding along the road for some time the scene changed, from the huts becoming less numerous, and the cocoa-nut and other trees being entirely replaced by the jangús (cashew-nut), which grows here to an unusual size. Here and there boys were merrily climbing the trees and gathering the fruit, and groups of children were playing under the trees.

Towards the southern extremity of the permatang, the huts again thickened till they grew into another village, with a mosque, and shops called Sangé Dúbaka Júru, lying upon a small stream, which marks the termination of the Permatang. The road now lay through the open paddy plain in a nearly straight line for about two miles, exposed to the full heat of the sun, and unenlivened by any huts or trees. It then enters a pass between the

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\* Chief's estate.

two westernmost of three low hills, which run almost due E. and W., and are called **Búkit Tangah** (*i. e.* Middle Hill). The lower face and bottom of this little range has a fine appearance as it is approached from the N., being densely covered with fruit-trees of a dark foliage, and large cocoa-nuts. The paddy plain, on the right or W. side of the road I have passed over, is of no great breadth until past the village of **Dúراكا Júruk**, the mangrove swamp of the **Púz** stretching down in a south-westerly direction, and preventing the extension of cultivation. After that village has been passed, the western boundary of the paddy-plain bends towards the sea, causing the plain to bulge out till it attains a breadth of about two miles from the road. Several small permatangs, with their usual accompaniments of fruit-trees and huts, were scattered over it. The division of the plain eastward of the road is of considerable extent, forming a somewhat irregular area of more than three miles square. Towards the road, every inch is as fully cultivated as the plain on the western side; but nearer to the hills it is studded here and there with forest-trees, showing that it has more recently been reclaimed from a state of nature. Some portions also seem to be only half cultivated. In riding from **Dúراكا Júruk** to **Búkit Tangah**, the object which most attracts the attention is the great domed mass of **Búkit Moratajam**, which appears throughout to be quite close on the left hand, but yet continues to preserve the same apparent distance. The fact is, its base is of great extent, and its flanks come down into the plain over such a large area, that it presents a wide and imposing front throughout the whole circuit from **Búkit Mérah** to **Búkit Tangah**. It is above 1800 feet in height.

It was an agreeable change to leave the hot plain at once, and pass into the low defile between the **Búkit Tangah** hills. On the right a portion of the most westerly hill is planted with nutmeg-trees. A Malay woman was at work among them. I asked who the planter was, and she replied "**Che Ahmat**," and pointed to a Malay man who was busy digging out the **láláng** at the further end of the plantation. On seeing me he put down his **chemkul** (a kind of hoe, the universal substitute for the spade), and came forward with the courteous, good-humoured, and obliging manner which distinguishes the natives of the Wellesley Province, or, I should rather say, the Kedah Malay, and entered into conversation. He invited me to rest during the heat of the day in his house, and after I had ridden forward and looked over the country to the S., I returned with him. He struck off westward, conducting me along the foot of the hill through a grove of trees to his house, which I found to be quite an uncommon edifice for a Malay being very neat, and having a pleasant little veranda

with Venetian windows. One could not wish to take shelter from the sun in a more quiet and sequestered spot.

I rested here luxuriously for about two hours. No sooner had I entered than one of the inmates hastened to climb a cocoa-nut-tree, select a nut, and open for me its secret fountain of the most delicious beverage that a thirsty traveller can drink. We had much talk about the return of Malays to Kedah, the paddy crops, late seasons, my host's own history and that of his family, ending in a geological discussion respecting the oceanic origin of the plain. As a striking proof of this, it was mentioned that a permatang to the E. of Búkit Tangah, called Permatang Bátú, was almost wholly composed of sea-shells, and that shells were found in abundance on the top of Búkit Dúراكa Júru, a low hill a little to the N.E. of Búkit Tangah. I was curious to see this remarkable deposit, and we proceeded to the place, crossing a number of paddy-fields which lie between the two hills. The paddy was strong in general, but in some places had suffered from superabundance of water; it was also not so far advanced as the crops farther N. The hills, for there are two, lie close to the mangrove thicket, and have been islands or an island at a recent period. The one nearest Búkit Tangah we ascended first. The path lay over an abutment which runs out into the plain in a westerly direction, to the length of perhaps 80 or 100 feet; but of this I could not well judge. Its height, where the path crosses it, seems to be about 15 feet above the paddy plain. The top, so far as I examined it, was wholly composed of modern sea-shells lying very close to each other, and embedded in a stiff blackish soil. At one or two places I noticed points of granite rock protruding. We descended the other side of this abutment into the hollow between the N. and S. hillocks, which is covered, as is the side of the southern hill, with fruit-trees, chiefly magnificent dúreys,\* of a height I do not recollect to have elsewhere seen. We then ascended to the top of the southern hill, which is composed of large rounded granite rocks. On the southern face of the other hill there is another plantation, or kampong, belonging to an ex-panghúlú † mokím. This plantation, to judge from the appearance of the cocoa-nut and other trees, must be very old. A road leads from this kampong through the mangroves to a creek, which, taking its rise in the paddy plains to the N., bends inland to this point, and then pursues a N. direction to the Júru river. Boats of 6 kóyans ‡ burden ascend to this place. At the bottom of the eastern side of the northern hill are immense rounded

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\* Durio Tibethinus, Linn.

† Appointed head man.

‡ 1 kóyan = 48 pikul = 6400 lbs., nearly 6 cwt.—F. S.



and flattish granite rocks with deep hollows between them, strewed over a considerable space. They are far too large to have descended the slight declivity of the hillock, nor could the force of the rain pouring from it have washed away the earth and disintegrated the surface of the hillocks, so that there cannot be any doubt that this has been the work of the tides and waves of the sea, which do not now approach within a mile, save by the creek. We returned to Che Ahmat's, and after resting another hour I returned leisurely to Bukit Mérah. On the way I dismounted at Dúrika Júru, where a number of Macao Chinese are settled as paddy-planters. They were busy cleaning the paddy, which they did with more rapidity than the Malays, having winnowing-machines, &c. They are chiefly renters from the Malays, but some possess lands of their own. The soil of Bukit Tengah is a coarse granite. Che Ahmat had dug a well and a tank on his ground, the former of considerable depth, and, so far as I could see (to the depth of 8 feet or so), the soil was uniform. Water is found in abundance all round the hill, on digging to a small depth. The surface, from the prevalence of quartz, is coarse and unfruitful. The hill was formerly cleared for pepper, but, with the exception of its lower part and the piece cleared by Che Ahmat, it is overgrown with lalang, and towards the top with low brushwood. In the evening I crossed the plain from Bukit Mérah to Permatang Pasir, and struck across it to Bukit Jalútong, which is composed of the same rock and soil as Mérah. The colour varies considerably; at its N.E. corner it has a redder hue than on the side directly facing Mérah; a fine white clay, exactly resembling it in everything but colour, is also found there, and some other intermediate colours, such as yellow, pink, &c., resembling in this respect, as well as in the alternate shades of colour, the clay strata of Pearl-Hill near Singapur. The clay is so fine in its particles, and imprints itself so readily, that it may be used like chalk or slate for marking. Its mark has the colour of the clay, except some of the tawny stones, which give a red streak. Strewed along the foot of that portion of the hill which they are at present clearing, were some large fragments of a harder rock, nearly approaching in appearance some varieties of laterite, particularly from its dark or blackish colour, but it yields a red streak, similar to that of the soft clay mentioned above. Near the surface also, particularly in the section on the upper side of the road, which Colonel Low is at present cutting along the northern base of the hill, there is an irregular layer of indurated gravelly stone, exactly resembling such as characterizes some hills of laterite. The surface of the higher part of Bukit Mérah is full of this gravel. These indurated blackish fragments and gravel are doubtless the clay of

which the hills consist, metamorphosed in different degrees by volcanic action and a greater elevation, and having been ejected through fissures whose courses would probably be exposed, were sections made, in the shape of dykes and veins, as is often the case in the Singapur hills. These hills may be considered as members of the semi-volcanic zone of the Straits of Malacca.\*

At the point of Bukit Jalutong, on the side which I visited, the sandy soil of Permatang Pasir commences. On this plain, about twenty feet from the foot of the hill, a well has just been dug. At a depth of three feet from the surface there is a bed of white clay of the same texture as the rock of the hill. On the face of the hill there are some coffee-plants, but from want of shade they do not flourish. The vegetation on these red clayey hills is distinguished by its dark-green hue. The nutmeg-trees with which Bukit Mérah is covered are decidedly the finest in the three settlements; their dense dark foliage gives them, indeed, an aspect quite peculiar. Unlike Bukit Tangah, these hills have no springs. The soil is of a loamy clay, and entirely similar to the finer marls (not calcareous) of the Devonian system; it is of a deep-red colour, whence the name of the hill—*Bukit Mérah*, *i. e. Red Hill*. When dipped in water it rapidly falls away into a fine powder. Similar soils in England are very fertile, and produce rich crops of all sorts. Besides the volcanic pebbles and fragments, small pieces of quartz are found interspersed among it. The hill is about four miles from the present coast of the province. "From the steep scarped appearance of its seaward face (or that which must have been opposed to the waves rolling in from the Bay of Bengal) and its general configuration, it may be inferred

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\* "In coasting along the W. shore of the peninsula from Pinang to Cape Rachado, a high chain or rather series of ranges of mountains is observed inland nearly the whole way, which, from their generally sharp-peaked summits, the nature of the detritus brought down from them by the rivers, and the evidence afforded by the few points which they have reached, we are justified in believing to consist in great measure of plutonic rocks. In front of this range we discern a broad tract of country, often appearing to be perfectly flat, and very little above the sea-beach for miles together; from which sometimes low hills rise like islands out of the sea. These hills are frequently quite solitary, and at a great distance from the central mountain, or near the coast. Farther inland they seem to be generally in groups, and towards the mountains the country in some places appears hilly and undulating. At Malacca these low hills are occasionally so much grouped as closely to resemble portions of Singapur, and they are covered by pebbles and scoriform and altered fragments of rock precisely similar to those found on some of the Singapur hills (which I believe in every case to be related to volcanic fissures of eruption, opened contemporaneously with the elevation of the hills). In some of the hills opposite Pinang I observed similar fragments. In both cases the soil had a deep-red, ferruginous aspect. Cape Rachado is described by Crawford as consisting of quartz rock interspersed with frequent veins of clayey iron ore. That most of the hills scattered along the western plains of the peninsula were islands in the sea at no remote period, there can be no doubt. The plains from which they spring are flat, generally only a few feet above the level of the sea, alluvial, and in some places abounding in marine shells of the same species as those at present found in the straits."—*On the local and relative Geology of Singapur, &c.:* by the Writer.

that a considerable portion of it was washed away by the sea, and its existence as an island continued during a long period subsequent to its elevation.”\*

The contrast between the frank simplicity and humour, harmonizing well with a certain grave dignified self-possession, and genuine politeness which characterize the manner of the Malays of Kedah, and the bravado, sinister, and impudent bearing of the insular Malays at the southern extremity of the peninsula, is very remarkable. The former, though polite, distant at first to Europeans (as a class either too repellant or too rudely obtrusive in their manners to commend themselves to the good-will of the Malayan peasant, who, beneath his often unpromising exterior, conceals a lively sense of his own honour, and respect for that of others), are no sooner addressed in their own language with good humour and courtesy, than all reserve disappears, and is replaced by the most obliging communicativeness. The latter, on the other hand, are, in general, saturnine or impertinent, and answer inquiries with a degree of suspicion and dislike which forbids any profitable or genial intercourse with them. Thus, while the agricultural Malay of Kedah makes one of the best companions in the world, the maritime, and most frequently semi-piratical Malay of the southern islands, proves about the worst. The Wellesley Province, during the few days of my sojourn at Bukit Mérah, wore an aspect of abundance and general hilarity that Arcadia might have envied. During the harvest-season an unwonted excitement and a livelier geniality pervade the breasts of the Malays. Their hearts open to each other, and are more deeply impressed with thankfulness to the unseen powers, and to *Tuwau Allah*,† whose ministers they are, for having heard the invocations with which they sowed the seed, and caused the food of man to be again plentiful in the land. Hence they begin the harvest with religious observances; and, as their houses become filled with paddy, give vent to the general gladness in musical and dramatic entertainments. During the whole evening the sound of the *wáyang*, *máyong*, and *mám mandrah* from the villages around reached Bukit Mérah; and on awaking before the dawn, I heard it still prolonged.

I was informed by several Malays at different places that the crops of paddy had been inferior for some years past. The rents appeared to average three dollars an orlong (a square measure equivalent to about an acre and a third). At the large Chinese establishment at Dúranka, I was told that the farmer, like other

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\* From a paper by the writer ‘On the Strait of Malacca and the alluvial Plains on its Borders.’

† Or Túhan Allah, *i. e.* Lord God. If they believe in any other unseen powers, that part of their creed is a relic of the idolatry of their ancestors.—F. S.

Chinese engaged in the business, owned some lands himself, and rented the rest. In this quarter the rent is generally four dollars. At the time of my visit the attention of European capitalists was much attracted to the province in consequence of the Supreme Government of India, after for some years resisting the solicitations of the merchants and planters of Pínang, having, under instructions from England, placed this settlement on the same footing as Bengal with respect to the importation of sugar into England. A sudden impetus was thus given to the cultivation of the sugar-cane, which had hitherto been carried on at a great disadvantage; and some planters seemed inclined to purchase paddy-lands for making sugar plantations, rather than clear waste tracts for that purpose. The Malays in the neighbourhood of Búkit Tangah had been too long inhabitants of the province, and had formed too many family connexions, to be willing to sell unless at high prices, perhaps thirty to forty dollars. Those at Sangí Susat were selling out, in order to return to their native country, Kedah, at ten to twenty dollars per orlong. In the vicinity of Búkit Mérah, the rents were paid in kind at rates from four to six *nálíhs* per orlong.\* The produce per orlong varies greatly, so much as from one and a half to five *kuchas*. The value of lands and rents has fallen considerably of late, owing, in some measure, to the too rigorous exaction of assessment (a new burden, to which the Malays were strangers, and which they could only regard as a second rent in addition to the quit-rents reserved by Government with their grants), but principally to the old Malayan chiefs having been allowed by the Siamese to return to Kedah, whence they were expelled under circumstances of great treachery and diabolical cruelty in 1821. The Chinese (from Macao) are increasing in number. They plough the land better than the Malays, and get heavier crops. At Dúranka I found from forty to fifty Chinese engaged in cultivation of paddy, about eighty at Pau, as many at Paoyo, twenty to thirty at S. Susat; in the neighbourhood of Búkit Tangah there were about eighty, but there they plant sugar-cane, cloves, &c.

The river Prye, as far as I went up it on this occasion, and much farther, even beyond the limits of the province, is a broad and deep salt-water creek, in the middle of a belt of mangroves. The Malays informed me that the head of the creek is at the

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\* The Malayan corn-measures universally used in the province are the

Kai . . .	4 of which =	1 Chupah
Chupah . . .	4 „	1 Gantang
Gantang . . .	16 „	1 Nálíh
Nálíh . . .	10 „	1 Kucha
Kucha . . .	5 „	1 Kóyan
Kóyan, which weighs about 60,033 lbs. avoirdupois, according to Colonel Low.		

Labu Buting, where a small stream runs into it. Its proper name farther up is the Súngai Kálím, and it has two tributaries, the Súngai Jara and Súngai Labu Marijam, or Súngai Báru. The course of the creek is very winding, and at some places it touches the dry plain. One of these places is at Bagan Srye, on the left bank, where it is washing away the land.

20th.—This morning I again rode to Bukit Tangah, and thence southwards. Beyond Bukit Tangah the country changes from a flat alluvial plain to an undulating sandy tract. This is succeeded by a broad level belt, of which a small portion on the N. side, above the level of the sea, consists of a whitish clay, with streaks of red, and is cultivated as a sugar plantation by Chinese. Next comes a swamp covered with mangroves, and the southern margin of the belt is washed by the Juru, here flowing close to low hills of pure white sand, at least on the surface in no way differing from that on the sea-shore. The mud of the swamp spreads over the sand at its border. For some distance beyond this the country is undulating and sandy. It is in the southern districts of the province that the great field for sugar-planters will be found for some years to come. Many eligible tracts for plantations exist between the Juru and the Prye, and in the great paddy-plains to the N. of the latter river; but planters look to immediate profit, and would find it impossible within any limited time to buy up, from the numerous native holders, a piece of ground in one place sufficiently large for their purposes. The paddy-lands are, for the most part, subdivided among their owners in pieces varying in size from fifty to two or three orlongs.\*

After passing a month in Pínang, a great portion of which was employed in exploring one of the mountain ranges, described at some length in a paper communicated to the Asiatic Society in Bengal, I left it with much regret. The exceeding magnificence of its mountain views, the richness and variety of their component parts, and the coolness and transparency of the atmosphere which this country enjoys give a freshness and elasticity to the mind never experienced in the sultry plains of India. I have now explored nearly every part of the settlement, and hundreds of scenes most interesting and dissimilar have rewarded my toil. It is almost inconceivable how nature, in so small a compass, has contrived to crowd such a wonderful diversity of objects. The old mossy rocks, fir-trees, and ferns of the higher hills, beautiful and odoriferous flowers which adorn all the forests in spring, the deep ravines lined with dense and picturesque shrubs, in the rocky dells

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\* During the last twelve months several new plantations have been commenced in the southern districts—two on the Juru, four in the central part of those districts, in addition to three which had been formed at the time of my visit, and two on the Krian River. 1st June, 1846.

of which the streams force their way; the gloom of the more gigantic and yet unscathed forests, haunted only by wild animals, where silence is broken only by the melancholy cries of the apes and the notes of birds never heard in inhabited districts; the slow winding rivers, generally solitary for miles together, but sometimes bearing the light prahus (barks) and flowing past the kampongs of the Malays, are but a few of numberless and infinitely varied scenes and objects which make a delightful and indelible impression on the memory.

*Excursion from the town of Singapúr to Puló Ubin, in the Northern Strait, in March, 1846.*

ON Thursday afternoon (12th March) we sent a boat round to the head of the Sirangun creek, which is accessible from the town by a road across the island. Next morning we started at five o'clock, arrived at the creek in good time, and proceeding from its mouth eastward landed at Pasir Ris,\* a kampong, or hamlet, consisting of half-a-dozen huts on a sandy level thrown up by the sea and overgrown with weeds, some of which were covered with pretty flowers. A few cocoa-nut trees are scattered about. On the right and left the thicket encroaches on the narrow open space; behind it there is a small, stunted, and neglected fruit-garden, backed by the uncleared wood. A path full of puddles, from which our feet were but half protected by some sticks, led us across the open ground into a dry sandy tract covered with low trees, not crowded, and therefore the more pleasing. Farther on the ground rose slightly, and became a little clayey; rising at length into a ridge of nearly pure sand, and covered with the blackened trunks of trees recently felled and half burnt by our Chinese companions for the purpose of forming a gambír-plantation.† From the summit the ridge was seen to stretch away on both sides, with hollows descending from it in a S.S.E. direction, to a broad mangrove swamp, through which flows the Sangí Tampinis. At the mouth of this creek there is a small hamlet, occupied by Chinese sawyers, who had taken alarm at the rapid destruction of the wood by the gambír-planters, and felled a strip to intercept their advance upon them. In Singapúr disputes between Chinese wood-cutters and planters are not unfrequent; and the latter, it is probable, are more frequently to blame than the former. The soil belongs to the crown, and the planter takes possession of a tract without any licence, nor does he pay rent; yet the sense of ownership so grows upon him, that he demands a price for every tree felled by the wood-cutter in the wood adjacent

\* Pasir, i. e. lowland near the sea.—F. S.

† Gatah, gambír, or gambír-gum, collected from the *Uncaria Gambir*.—F. S.

to his plantation, from which he derives his supply of fuel for his boiling-house. The forest on the hillocks around us was peculiarly stunted, owing to the barrenness of the soil. On the S. side of the island, opposite to this tract, the soil is similar; and it is, therefore, probable that the sandstone beds, from the disintegration of which it is produced, extend continuously across the breadth of the island in this direction, *i. e.* from Pasír Rís to Tánah Mérah Kíhí, or the Small Red Land, but not above  $3\frac{1}{2}$  miles in distance. Emerging from the thicket, on retracing our steps, we stood on the beach at Pasír Rís, and admired the secluded and beautiful view. The Strait, landlocked on every side, was transformed, to the eye, into a placid lake about three miles long and two miles broad. It appears to be surrounded by jungle, the mangrove predominating wherever there has originally been a deep indentation in the coast. On the N. the opposite side of the strait is completely excluded, save at one point, by the hilly island of U'bin. A broad bay on the shore of this island is nearly filled by a low flat islet, or mud-bank (Púló K'tam), covered by a thick sheet of green-gleaming mangroves. We stood across the strait towards Púló K'tam, passed its eastern point, and then proceeded eastward along the shore of Púló U'bin. Several rocky points slightly project from it covered with trees, only a few of which are distinguished by their size, and, being farther apart than is usual in equinoctial forests, their luxuriance and unstunted growth are seen in all their beauty; the many abrupt and rocky masses partially visible, and clothed with mosses and lichens, and the shrubs springing from their clefts, prevent the larger trees from growing closely together, and bring their trunks here and there into view. Shrubs, creepers, and parasites of various kinds so cover the dead rocky masses that they seem as if they teemed with vegetable life; while the intervening bays are almost concealed by unbroken masses of mangroves.

Passing the S.E. extremity of Púló U'bin, we pulled across the strait, that separates it from Púló Túkong Besar, to two small islets lying not far from the latter, and called Púló Sjí'hat. The smaller or easternmost of these I examined as minutely as circumstances would allow. It is one solid mass of rock, for the most part if not wholly volcanic, rising a few feet above the sea, and strewed round its base with fragments of rock and broken coral. A few small trees grow near its centre. The W. side is covered with similar fragments, and supports a scanty vegetation, but on the E. the bare rock is exposed, sloping gently to the sea. Its lower portion has a blackish surface, and is smooth and solid. At its N. edge there is a basin bearing marks of igneous action on its sides, which are rugged, slightly scoriaceous, and of a brownish red colour. The upper portion of the rock on this side is marked

by numerous parallel vertical fissures running nearly S. by E. These are crossed by less numerous parallel fissures. Some of the edges of the laminæ, included between the fissures of the first series, slightly project in narrow ridges above the general surface. On the S. side of the islet a similar structure was observed, and where the rock had a fresher or less weathered surface, the appearance of fissures and ribs disappeared, and it was seen to be traversed by parallel zones, each consisting of several thin parallel lines or cohering layers of a darker colour than the body of the rock. Across these, at an angle somewhat less than a right angle, and separated by wider intervals, ran dark parallel lines. The rock hitherto described passes gradually from basalt to greenstone. Of a few specimens from different places one had a felspathic base of a light grey colour, with a faint bluish tinge, in which were specks of dark green hornblende or augite (in one place arranged into a band) and very minute metallic granules, with a coarse and splintery fracture and translucent edges; another was of an uniform dark greenish grey colour, fracture very fine splintery; a third a cherty rock of a light bluish colour and flinty fracture; a fourth a dark uniform blackish green basalt; and a fifth greenstone of an uniform light greenish grey colour. The mass of rock, of which these were specimens, was traversed on its S. side in a S.S.E. direction by a vertical vein, about 2 inches in breadth, filled with white quartz. Not far from this, but more to the W., the rock cannot be distinguished from a clay-slate. It is entirely devoid of the hard vitreous character of the rocks previously noticed. Its fracture is earthy. It is regularly laminated, being intersected by three systems of cleavage; one, of which the plane is at a small angle with the horizon, dividing it into laminæ about an inch in thickness, and two perpendicular to the other and crossing each other, subdividing these laminæ into small rhomboidal tables, which are readily detached from the surface.\*

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\* Although when on the spot the great mass of the islet appeared to be undoubtedly volcanic (and I had not time to trace the boundary between the more argillaceous and the silicious portions), I find myself, after examining the specimens which I brought away, unable to decide confidently whether the whole may not be metamorphic. If the greater part of the rock be volcanic, it seems necessary to believe that it was formed beneath an argillaceous bed. It is more probable, however, that such a bed furnished the material of the whole rock, and in that case it would merely be a question as to the degree of fusion requisite to account for the varying mineral character of the mass. In those places (if any) where the fusion had been complete, the rock would be entitled to the name of volcanic. Where it had been imperfect, it would be metamorphic. That the rock from which my specimens were obtained, if not volcanic, was so far melted as to allow of a free motion of its particles, and even some new chemical combinations, is clear. The result has been, that in the space of a few square yards we find clay-slate, Lydian stone, hornblende-slate, and several varieties of greenstone, some of which pass into basalt.



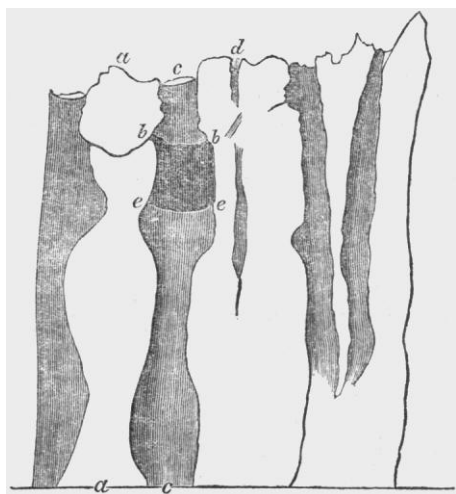
The other islet is considerably broader and higher than that just described, and covered with luxuriant vegetation. The large trees which formerly crowned it were cut down some time ago, but young ones are already lifting their heads above the under-wood. We pulled round it, and the rock appeared to be similar to that of the smaller islet. A specimen from one spot, where it possessed a laminated structure similar to that before noticed, proved it to be much more indurated, somewhat resembling flinty slate, but approaching more nearly to hornblende-slate.\*

On our return we pulled close in to one of the points on the S. side of Púlo U'bin, where we had noticed some huts of some Chinese employed in quarrying granite for the supply of the builders in the town, who use it for the foundations of houses. Struck by the extraordinary appearance of some of the granite rocks on and near the beach, we landed to examine them more closely. Their sides are fluted, presenting regular vertical concave furrows and convex ridges. A little way in from the beach, and on the lower slope of a hill which rises from it, stands a very large rock, of which two faces are visible, the others being concealed by luxuriant shrubs, and the summit overhung with trailing plants. When seen at a short distance, it is hardly possible to avoid mistaking it for the remnant of an ancient temple rudely sculptured out of solid rock, since a row of colossal misshapen images seems to project from its front; but on a closer approach my amazement increased; for, too irregular for a work of art, it was difficult to conceive that it could be merely a work of nature. In the woods on the granitic mountains of Pínang I had detached masses of that rock in every possible state and condition; either in solid boulders of vast size, cubical, or nearly globular, or in smaller blocks piled upon each other with the regularity of druidical masonry. But I had never seen or read of granite carved by nature after the fashion of the mass now before me. On the perpendicular face of the rock are scooped out from top to bottom deep concave hollows or grooves varying in their dimensions. The rock between them formed huge projecting columns rounded at their summits. In some a slight, curved groove or fissure crosses a little below the summit, and gives it the appearance of a cup holding a rude globe, for immediately beneath this fissure the column contracts very much on both sides. Lower down it again bulges out, but more on the left than on the right side. Its

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\* The direction of the principal zones and fissures, with the general direction of the hill-ranges and valleys, and the strike of the arenaceous and argillaceous strata of Singapur, have been elsewhere described by me in connexion with the geology of the island (semi-volcanic in its structure and composition), and its relations to a wide region traversed by the great volcanic band of the Indian Ocean.

sides then continue with a slight inclination inwards, and further down converge more rapidly. It then swells out for a little, till its further course is lost in the ground. Throughout a portion of its height the opposite curves of the sides somewhat resemble those of a vase. The bottom of the grooves between the columns is smooth and of a nearly uniform depth, although uneven. Of these singularly shaped pillars five or six which are contiguous closely resemble each other. When viewed from one side they are all seen to be scooped quite round at the places where they contract, so that their outlines appear thus :—



*a a* is a front view of the easternmost pillar; beyond it, towards *c* and *d*, the regularity is broken, and the grooves and intervening ridges cease to be symmetrical. The shaded parts are the grooves. The groove marked *c c* is a very remarkable one; the upper part has a perfectly regular, vertical, semi-cylindrical form, which ceases abruptly at *b b*, where the groove slopes evenly inwards at a small angle with the horizon, so that the portion darkly shaded forms a cavity apparently about five feet in depth. At *e e* the groove returns to its previous depth. A slight groove, an inch or two in depth, occurs at *d*, and deeper ones appear farther to the right.

On clambering up to the top of this rock I found the grooves to be partially prolonged on the upper surface in an inclined direction. The surface is also worn in some places into cup-like hollows, some of which are filled with mould and covered with grass.

At no great distance further up the hill I came to another rock of much larger dimensions, in like manner grooved in front. It is traversed by a chasm from 6 to 8 feet broad, which divides it into two parts. The sides of this chasm are much fresher than the external surface of the rock, and unmarked by any furrows.

This mass was evidently split in two at a time long subsequent to its existence as a separate rock and the formation of the grooves upon it. The extremity of one of the divisions projects over the sloping surface of the ground so as to form a capacious cave. I clambered round this mass, and at one place saw a large fragment which had fallen from the edge of the rock, and lay against it. On its surface there is a cup or spoon-shaped concavity, about 2 feet in mean diameter and 1 foot in depth. At another place a second projecting rock is seen. On this side there are numerous grooves, some of them not more than a few inches in depth and breadth, and others above  $2\frac{1}{2}$  feet deep and 2 feet broad. At one place there is a groove about 6 feet deep and 2 feet broad, with smaller secondary or inner grooves on its sides. A heavy shower prevented me from making any measurements. On my return I observed many smaller rocks near the beach with similar grooves on their side. On the top of one of them there is a long deep trough with smaller channels converging into its end like the sticks of a fan. The rest of the surface is covered with slight depressions. I believe this is the first instance of granite rocks near the shore observed so close to the equinoctial line; their absence in intertropical latitudes has been considered as an argument in support of the glacial theory of the boulder formation. None of the grooves, however, which I observed resemble the parallel, inclined, or approximately horizontal furrows, which are caused by the motion of glaciers in sliding down the rocky trough of a valley. But they appear to correspond strikingly with the giant caldrons passing into long deep grooves, which are described by Agassiz as being produced in the Alps and Mount Jura by streams of water falling over the sides of chasms in advancing glaciers, and acting as an erosive moving force on the subjacent rocks. My hurried and restricted observations hardly warrant a conjecture as to the probable origin of grooves here described. The supposition that most forcibly presented itself to me on the spot was, that the several rocks, before they were shattered and separated by the convulsions which placed them in their present positions,\* had been the bed of a mighty waterfall which gradually

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\* The abundance of conglomeritic rock in Singapur and the neighbouring islands, interstratified with clay and sandstone, seems to justify the supposition of an ancient continent in the vicinity existing long anterior to the latest volcanic action which converted these aqueous rocks into the present land. Perhaps in the granite of Púló U'bin we see a remnant of that continent, and in its grooves the channels down which a portion of the materials of the conglomerates descended in their course to the sea. The fact that some of the lower fluted rocks are partially below the level of the sea shows that there has been a subsidence of the granite, and this may have been incident to the breaking up of the continent. Every new fact that comes to light agrees well with the hypothesis of "a great Australasian continent, an extension, probably, of the present

wore their sides into furrows, at a period when the sea and land were in a very different state from what they now are. A succession of falls would account in some measure for the step-like position of the rocks with respect to each other, and for the spoon-shaped hollows on the surfaces of some of them passing into the vertical grooves on their sides. It appeared to me that ordinary atmospheric erosion and decomposition were totally inadequate to explain the shapes and size of the grooves. In many places they are overgrown with moss and lichens, and many, if not all the deeper ones, are prolonged under ground, and thus protected by the soil of the hill, which must have covered them for a considerable time, since large trees are rooted in it, and the mould proves that these are the descendants of a long succession of predecessors. The aspect of the rocks is not such as rapidly disintegrating granite wears, but, on the contrary, grey, like that of an ancient building.\*

I could find no traces of any fissures coinciding with the direction of the furrows. Yet there can be little doubt that, to whatever agency they be referred, they were first opened along lines where the cohesion of the granite was comparatively weak. The regularity with which the projecting columns of the rock first noticed are traversed at two places across the direction of the grooves by depressions, seems to show that the granite has an internal arrangement similar to that so frequently observed in this rock, which causes it to be shattered or to break down into blocks more or less cubical. In one of the lower rocks which the Chinese are quarrying they had laid open two parallel vertical veins traversing the entire rock, so as to include a lamina or plate of about an inch in thickness. One side of this plate sparkles with metallic grains, which I have not yet examined, but which appear to be minute iron pyrites. The other side is covered with

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continent of Asia," having been broken by local subsidences, destroying its continuity, and producing peninsulas and islands in wide shallow seas where the depression was least considerable. Over the greater part of the area of subsidence at later epochs, there appear to have come into action volcanic elementary forces—where the subsidence has been least, generally in zones related to the great axes of elevation of the ancient continent; but where greatest, in independent curvilinear bands radiating from centres of most intense force, and only at their extremities, on approaching the margins of the depressed area, converging towards, or assuming directions indicating the influence of, the ancient lines of elevation or fracture.

\* Whether or not lichens, &c., protect rocks from decomposition or disintegration, it is certain that those buildings which are covered with them, exhibit the least tendency to yield to atmospheric action. (See Parliamentary Report on the Materials of Public Buildings in England, cited in Gwilt's Dictionary of Architecture.) In Pínang, where the granite is very various in its composition and structure, the decomposing rocks have a comparatively fresh surface. Those that do not yield have vegetable coatings, generally blackish, whitish, or grey.

a rusty stain, resulting probably from the fissures on that side having been exposed to the air, and consequently decomposed. Of the exfoliation so common in exposed granite in the Pinang hills, I saw no trace on any of the rocks here.

As we pulled away from this place and looked back, even the want of light and shade, and the heavy rain that was falling, did not prevent our acknowledging that it possessed a character of picturesque beauty of a very pleasing and uncommon kind. The forest-trees in Singapúr do not in general attain sufficient size to assume that air of grandeur which distinguishes those on the Pinang mountains, and they are so blended with the underwood, which grows up like a thick crop of rank weeds around them, and so interwoven by creeping and pendant plants into a dense mass of green, that their individuality is lost. At this spot, however, many trees rise up in all their natural strength and beauty, and expand in mid-air in their full proportions. The number of double or married trees (as they are called) congregated at this place was indeed remarkable; and when we recollect that the Hindús, who, in remote ages, occupied a great part of these regions, as is shown by their ancient Zaba on the River Johór, which flows into the strait between Púló U'bin and Púló Tókong, either selected the neighbourhood of such trees for the sites of temples, or planted them where they do not grow naturally, it is again difficult to resist a momentary belief that these grey pillared and fluted rocks are really the remains of some great temple overborne by many centuries of desolation.

In the strait, which should have been mentioned previously, is Gúnong Bú, a broad pyramidal hill, which, as we approached the E. extremity of Púló U'bin, and the wide estuary of the Johór River, on the left of the old Singapúr Strait (Salat Tambrok), was seen at an apparent distance of 5 or 6 miles. It is termed by seamen Little Johór Hill, but forms one of the most prominent landmarks on entering the Strait of Singapúr from the China Sea.

XIX.—*On the Site of Ashtaroth.* By Captain NEWBOLD,  
H.E.I.M.S., F.G.S., &c. &c.

*Introduction.*—Mezaríb, a castle, with a small village, distant 3 days' journey S. by W. from Damascus, is marked in modern maps as the site of Ashtaroth, the capital of Og, king of Bashan [Joshua ix. 10]. This opinion seems to have originated with Colonel Leake, who, in his preface to Burckhardt's 'Travels in